Astrophysics and Geophysics

DETECTING DUST GENERATING STARS IN THE MILKY WAY GALAXY AND BEYOND.

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The question of whether stellar dust-production has a dependence on the metalicity, Z, of a region of space is an important and yet unanswered question for stellar and galactic evolution. In an attempt to determine this dependence, we developed a technique to find dust-generating or dust-embedded stars using the recently compiled 2MASS point source catalogue. Constructing J-H vs. H-K and K vs. J-K color diagrams based on the filtered 2MASS data, we have been able to detect all warm dust candidates in both the Milky Way Galaxy and nearby dwarf galaxies. Individual investigation of each source and its surrounding field stars using afore mentioned color diagrams removes the contaminating, highly reddened, “typical” stars. Once completed, this list will serve two purposes: the list will be the first comprehensive galactic and near extra-galactic list of all warm dust-producing/embedded sources, the list will allow for a calculation of the dust-production dependence on Z.

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